CLAIMS

What is claimed is:

1. A method for supporting the efficient transfer of baggage from an inbound flight to connecting flights, comprising the steps of:

identifying an inbound flight to a software module operating on a server computer in a distributed computing system;

retrieving data concerning the baggage from databases logically connected to the distributed computing system and providing the data to the software module at the server;

operating the software program at the server to calculate potential assignments for baggage transfer from the data and to select an efficient solution of assignments;

operating the software program at the server to calculate potential routes for completing the assignments from the data and to select an efficient route;

distributing the selected assignments and routes from the server to clients connected to the distributed computer network; and

delivering baggage to one or more outbound flights according to the selected assignments and routes.

2. The method of Claim 1, further comprising the step of notifying the software module operating on the server computer that tugs are available for delivering the baggage.

3. The method of Claim 1, wherein the step of identifying an inbound flight comprises:

notifying a dispatch client of an inbound flight number for the inbound flight; and

transmitting the inbound flight number from the dispatch client to the software module operating on the server.

4. The method of Claim 1, wherein the step of retrieving data from databases logically connected to the distributed computing environment comprises:

requesting flight data from a flight performance evaluation system;

if the flight data is not available in the flight performance evaluation system, requesting the flight data from an operations support system;

requesting passenger data and baggage data from a passenger information distribution system; and

if the passenger and baggage data is not available in the passenger information distribution system, requesting the passenger and baggage data from a reservation system.

5. The method of Claim 1, wherein the step of calculating potential assignments to select an efficient solution of assignments comprises:

defining desired driver, baggage, and stop parameters for determining a best assignment;

creating possible assignment solutions from combinations of assignments for baggage transfer; and

calculating a cost for each assignment solution.

6. The method of Claim 5, wherein the step of calculating potential assignments to select an efficient solution of assignments further comprises:

saving the solution with the lowest cost as the best assignment solution; and

presenting the best assignment solution to the dispatch client.

7. The method of Claim 5, wherein the assignment solution comprises one or more assignments providing for the transfer of all connecting baggage from an inbound flight.

8. The method of Claim 5, wherein the step of creating possible assignment solutions from combinations of assignments comprises:

identifying all zones of an airport concourse to which baggage must be delivered;

identifying the zone of the inbound flight as the starting zone;

either adding zones to the starting zone to create an assignment or considering the starting zone a complete assignment; and

creating additional assignments comprising either single zones or combinations of zones.

9. The method of Claim 5, wherein creating possible assignment solutions from combinations of assignments comprises:

eliminating possible assignment solutions that exceed driver, baggage or stop parameters.

10. The method of Claim 5, wherein the cost for each assignment solution is defined by the calculation of:

(number of drivers)*(driver cost) +

(max(num. bags) - min(num. bags))* (balance cost) +

(num. of same side zones not kept together)*(pair cost) +

∑assignments ((max (num. of bags, target num. of bags)-(target num. of bags)**2*(bag cost) +

((target num. of bags - min(num.bags, target num. of bags))*(bag cost) +

(max(target num. of stops, num. of stops) - target num. of stops)*(stop cost)

11. The method of Claim 1, wherein the step of calculating potential routes for completing the assignments comprises:

creating possible routing solutions from combinations of routes; and

calculating the total distances for each of the combinations of routes.

12. The method of Claim 11, wherein the step of formulating various combinations of potential routes for completing the assignments further comprises:

saving the routing solution with the shortest distance as the best routing solution; and

presenting the best routing solution to the dispatch client.

13. The method of Claim 11, wherein the step of calculating potential routes for completing the assignments further comprises:

identifying close connections departing shortly after the arrival of the inbound flight;

if there are close connections, beginning potential route sequences with the close connections; and

if there are no close connections, beginning potential route sequences at the inbound flight gate.

14. The method of Claim 11, wherein a routing solution comprises a sequence of all of the identified gates to which baggage must be delivered.

15. The method of Claim 13, wherein the step of creating possible routing solutions from combinations of routes further comprises:

identifying all gates to which baggage must be delivered and each gate's corresponding coordinates;

defining a starting gate of the route sequence at the last of the close connection gates, or if no close connections, at the inbound flight gate;

adding identified gates within the same zone as the starting gate to the routing solution;

adding the remaining identified gates; and

repeating the foregoing steps for various sequences of identified gates to create the possible routing solutions.

16. The method of Claim 11, wherein the step of calculating the total distances for each of the combinations of routes is based upon coordinates assigned to each gate.

17. The method of Claim 1, wherein the clients receiving the selected assignments and routes from the server are tug clients mounted on tugs operated by baggage handlers.

18. The method of Claim 1, wherein the step of delivering baggage according to the selected assignments and routes comprises:

completing the assignments by baggage handlers according to the routes;

notifying the software module on the server computer via tug clients when baggage handlers have completed the assignments; and

sending new assignments and routes from the server computer to the tug clients at the dispatch client's direction.

19. The method of Claim 18, wherein the step of delivering baggage according to the selected assignments and routes further comprises:

sending updated flight data to the software module; and

notifying tug clients of updated flight data.

20. A method for supporting the efficient transfer of items from an inbound conveyance to at least one outbound conveyance, comprising the steps of:

identifying the inbound conveyance;

retrieving item data describing the destination of the items on the inbound conveyance;

formulating various combinations of potential assignments for transferring the items from the item data in order to select an efficient solution of assignments;

formulating various combinations of potential routes for completing the assignments from the item data in order to select an efficient route; and

transferring the items from the inbound conveyance to the outbound conveyance according to the selected assignments and routes.

21. The method of Claim 20, wherein the step of identifying the inbound conveyance comprises:

notifying a dispatcher responsible for managing the transfer of items that the inbound conveyance is approaching.

22. The method of Claim 20, wherein the step of formulating various combinations of potential assignments for transferring the items comprises:

defining desired parameters for determining an efficient assignment;

creating possible assignment solutions from combinations of assignments for transferring items; and

calculating a cost for each assignment solution.

23. The method of Claim 20, wherein the step of formulating various combinations of potential routes for completing the assignments comprises:

creating possible routing solutions from combinations of routes; and

calculating the total distances for each of the combinations of routes.

24. The method of Claim 23, wherein the step of calculating the total distances for each of the combinations of routes is based upon coordinates assigned to each stop on the route.

25. The method of Claim 20, wherein the step of transferring the items from the inbound conveyance to the outbound conveyance according to the selected assignments and routes comprises:

distributing the selected assignments and routes that direct how the items are to be transferred;

completing the selected assignments according to the routes; and

distributing new assignments and routes for the transfer of items from a new inbound conveyance.

26. A distributed computer network for supporting the transfer of baggage from inbound conveyances to connecting conveyances comprising:

a central computer system operable for managing traveler processes and transmitting passenger data, baggage data, and flight data to a server computer;

the server computer connected to the central computer system operating an electronic dispatch software module for calculating baggage assignments and routes based on the passenger data, baggage data, and flight data;

at least one tug client coupled to the server computer and operable for receiving baggage assignments and routes from the server computer and presenting baggage assignments and routes to a baggage handler; and

at least one dispatch client coupled to the server computer and operable for receiving assignments and routes from the server computer and distributing them to the tug clients via the server computer.

27. The distributed computer network of Claim 26, further comprising:

a passenger information distribution system connected to the server computer and operable for transmitting passenger and baggage data to the server computer;

a flight performance evaluation system connected to the server computer and operable for transmitting flight data to the server computer; and

the electronic dispatch software module; wherein the electronic dispatch software module is operable to manipulate the passenger, baggage, and flight data to generate assignment and routing solutions.

28. The distributed computer network of Claim 26, further comprising:

a flight information display system operable for notifying a dispatch client of inbound flight information.